

# Educational Intervention on Human Papillomavirus in University Students

Meryene C. Barrios, Liliana Stella Rodríguez, Claudia M. Pachón, Emily A. Lugo<sup>1</sup>

Department of Health Sciences, Faculty of Health Sciences, <sup>1</sup>Department of Administrative Economic and Accounting Sciences, Faculty of Economic, Administrative and Accounting Sciences, Corposucre, Sincelejo, Sucre, Colombia

## Abstract

**Introduction:** In recent years, there has been an increase in the number of cases of women and men suffering from a sexually transmitted disease. **Objective:** The objective of this study was to implement an educational intervention on the human papillomavirus (HPV) to increase knowledge about the disease among university students. **Materials and Methods:** In a preexperimental study with 385 students of both genders, the strategy was designed under the parameters of the PAHO and the Theory of Beliefs in Health. The problem was identified through biological samples of the genitals, and the impact was measured through a questionnaire. The presence of HPV DNA was made with molecular polymerase chain reaction tests; and the answers, through coefficients of variation. **Results:** Of the participants, 60 were positive: 49 women and 11 men. At the beginning of the application, the knowledge level was medium, between 9.0 and 9.6. After the application, it was between 12.5 and 13, being the level of knowledge average, but very close to the threshold of high. **Conclusions:** With the results of the tests, it was found that HPV is a real problem among university students. The level of knowledge remained medium, despite the educational intervention.

**Keywords:** Educational intervention, human papillomavirus, university students

## INTRODUCTION

Cervical cancer is the fourth most common type of cancer in women worldwide and has the fourth highest mortality rate of cancers in women. That cervical cancer accounted for 7.5% of all cancer deaths in women in the world.<sup>[1]</sup> The most affected regions are the poorest countries, such as Central and South America, the Caribbean, sub-Saharan Africa, parts of Oceania and parts of Asia, which have the highest rates: more than 30 women per each 100,000 women.<sup>[2]</sup>

Young people integrate sexuality in the total framework of their lives. Sexual relations becoming a public health problem because sexual relations are being practiced without protection, and this fact is exacerbated by the students' ignorance about the human papillomavirus (HPV).<sup>[3]</sup> Therefore, vph is considered one of the most common causes of sexually transmitted diseases (STD) in men and women in the world and is associated as a necessary but not only factor for cervical cancer (ccu). It is estimated that some 260,000 women die in the world because of this cancer, 3300 of them in Colombia, and 88% of the total are women of the world called "Third World." The prevalence is higher in poor women.<sup>[4]</sup> Natural history and follow-up

studies have clearly shown that HPV infection preceded the development of cervical cancer by several years and confirmed that sexual transmission is the predominant mode of HPV acquisition. These studies satisfied, in biological terms, the long known clinical and epidemiological observations that cervical cancer displayed the profile of an STD.<sup>[5]</sup> Therefore, based on the national public health policy, a sexual and reproductive health plan was developed that develops the guiding principles and strategies, to develop a positive and responsible attitude in relation to sexuality among young people.<sup>[6]</sup> So that, it is necessary to design and implement policies to provide health education and counseling, along with the performance of HPV tests,<sup>[7]</sup> because most cases of cervical cancer can be prevented with routine screening tests and with the treatment of precancerous lesions.<sup>[8]</sup>

**Address for correspondence:** Prof. Liliana Stella Rodríguez, Professor Liliana Stella Rodríguez Tovar, Physiotherapist, Corposucre, Sincelejo, Sucre, Colombia.  
E-mail: liliana\_rodriguez@corposucre.edu.co

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

**For reprints contact:** reprints@medknow.com

**How to cite this article:** Barrios MC, Rodríguez LS, Pachón CM, Lugo EA. Educational intervention on human papillomavirus in university students. Indian J Community Med 2019;44:213-6.

**Received:** 02-08-18, **Accepted:** 11-06-19

### Access this article online

#### Quick Response Code:



**Website:**  
www.ijcm.org.in

**DOI:**  
10.4103/ijcm.IJCM\_247\_18

## MATERIALS AND METHODS

### Study setting

The study was carried out in two educational institutions located in the city of Sincelejo-Colombia, which encompass the largest population of university students.

### Study design and population

The research design is preexperimental, where an initial evaluation will be made to the implementation of the pedagogical strategy “Fall in love, without getting sick from HPV.” And, a final evaluation, to look at the impact of the educational intervention; the sensitization consisted of generating expectations among the students about the pedagogical strategy to be developed during the academic semester and encouraging them to participate in the diagnosis and thus to know the existence of positive cases of HPV. To do this, biological samples were taken through cytologies in women and brushed in the body of the penis and testicles in men and analyzed for the presence of the DNA of the virus in the so-called. To all university students ( $\geq 18$  years) of both sexes, Students ( $< 18$  years) of age who have not had sexual intercourse or suffered STD were excluded from the study. It was carried out between March 2016 and June 2017.

### Sample size and sampling

The selected sample was probabilistically, in a total of 385 students of both genders –192 women and 186 men – of two Institutions of Higher Education of Sincelejo, Colombia. The study was approved by the Ethics Committee of the CORPOSUCRE.

### Study tool and study variables

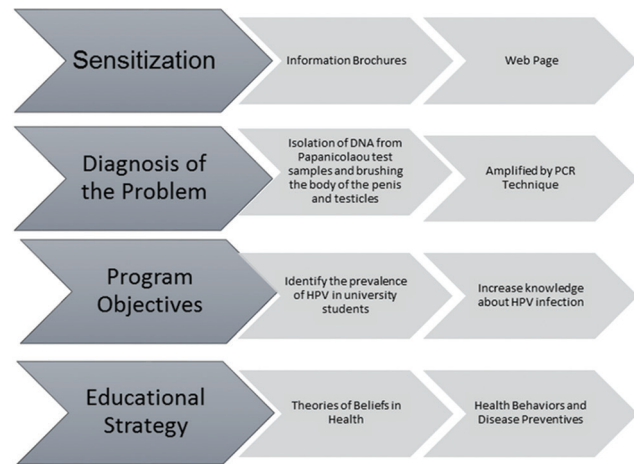
The instrument used for the evaluation is the knowledge questionnaire on cervical cancer, HPV, and its prevention.<sup>[9]</sup> The educational strategy was carried out taking into account the phases of the health promotion program-PAHO and the design of the strategy under the parameters of the theory of health beliefs. The duration was 16 weeks 2017-I [Graph 1].

### Data entry and analysis

The biological samples were processed by conventional polymerase chain reaction (PCR), where the DNA of the HPV was extracted. The statistical analysis carried out was descriptive, where a frequency analysis of each question was made, and by students, confidence intervals with an alpha of 95% were used. The coefficients of variation for the pretest and the posttest were calculated using Statistical Package for the Social Sciences (SPSS) version 15.2.06 (Chicago, United States).

## RESULTS

To carry out the belief in health model, it is necessary to identify if there is a health problem in a community and to generate education strategies for that reason, the presence of virus was identified in the students, of whom 49 women and 11 men tested positive for HPV. The proportion of students



**Graph 1:** Phases of the Educational Program according to the PAHO. Phases of the Educational Program PAHO

who may have HPV at the educational institution ranges from 11.46% to 18.54%.

Knowing that the population had the disease and could expand further, all students participating in the study were educated regardless of whether they were positive or negative. The education strategy was built based on the use of computer graphics, workshops, and informative videos among the university students participating in the study. In order to know the impact of the pedagogical strategy, the students' level of knowledge about HPV was determined through a confidence interval before starting the application, the average score of the correct answers to the test per pupil was between 9.0 and 9.6 the result yielded which has an average level of knowledge.

The serological status was not taken into account for the implementation of the strategy. Once this was finished, the students were evaluated again with the questionnaire. The objective was to inform about HPV so that this disease is no longer transmitted among students and to prevent cervical and penile cancer in young adults. The answers were analyzed through a confidence interval that scored between 12.5 and 13; according to the evaluation scale, the level of knowledge is medium but very close to the high threshold. The Variation Coefficient is 19.7%, which means that the group of students answered the same questions correctly; the scores are not as scattered as in the previous test, where the variation coefficient was 30.4%.

Based on the total scores of the examination, analysis of the questions was carried out to identify the issues that need to be further widened and deepened. For this purpose, the total number of correct answers per question was evaluated; it was carried out through a confidence interval, the correct and incorrect ones. The success rate per question was 204–288 students and the least successful questions were those asking about the presence of the virus in the cervix 23%, diagnostic methods 24% and 26%, and whether HPV was a curable disease 41% [Table 1].

**Table 1: Evaluation by question hits**

Questions	Percentage of hits
Cervical cancer is the growth of malignant cells in the vagina	23
Cervical cancer is caused by having a family member with cervical cancer	85
Human papillomavirus can cause cervical cancer	86
The human papilloma virus is transmitted by skin-to-skin contact in vaginal or anal sex	85
Most people with the genital human papillomavirus do not have visible signs or symptoms	55
Cervical cancer is a disease that gives symptoms quickly	69
There are vaccines that prevent infection by the human papillomavirus	88
The human papillomavirus can be transmitted even when the carrier has no symptoms	75
The cytology always detects the infection by the human papillomavirus	26
The cytology test consists of taking a sample of the vaginal discharge	24
The mother can transmit to her baby the human papillomavirus during childbirth	52
Cytology should be done every 5 years	77
Cytology allows an early diagnosis of cervical cancer	83
Human papillomavirus is a sexually transmitted infection	83
Having a type of human papillomavirus means that you can not acquire new types	68
Human papillomavirus can cause warts on the genitals	82
If the cytology is normal in a woman it means that she does not have the human papillomavirus	47
The condom always prevents the spread of the human papillomavirus	43
The human papillomavirus is a curable disease	41
95% confidence level	

## DISCUSSION

The implementation of the educational strategy begins with the awareness campaign to demystify the diagnostic tests<sup>[10,11]</sup> The main cause is the lack of knowledge associated with the procedure, the woman's own modesty, the feeling of shame and the belief that the diagnostic method is painless.<sup>[12]</sup> In a similar study, they report that women receiving a positive diagnosis could generate psychosocial effects such as anxiety, anguish and confusion, feelings of guilt, or the experience of being stigmatized.<sup>[13]</sup> Another cause is that women are not fully aware of the risks of sexually transmitted infections and preventive measures.<sup>[14,15]</sup>

In identifying the problem, 60 cases were positive for the HPV, of which 49 were women. According to world statistics, the maximum prevalence of cervical HPV - studied by the PCR technique - occurs between 20 and 25 years,<sup>[16]</sup> the average age of university women in Colombia. As for men, 11 were positive, it is estimated that this is from 1.3% to 72.9% of men infected with the virus.<sup>[17]</sup>

The knowledge of the students was evaluated to measure the impact of the educational intervention. Before starting the implementation, the participants had an average knowledge of

the virus, but in the analysis of the coefficient of variation, the answers were very dispersed. They present little clarity on the subject, although it is a well-known infection in society due to the adverse effects that occurred in some municipalities of the Colombian Caribbean region, with the application of the HPV vaccine in girls and adolescents,<sup>[18]</sup> a fact that differs from a study conducted in Mexico, where the knowledge that the students had was low.<sup>[19]</sup> The university population should be informed about cervical and penile cancer associated with HPV.<sup>[20]</sup>

In the students, who were positive for HPV, their knowledge was medium. In the women, it was observed that 49% did not know the diagnostic methods, and as for the men, they thought that the use of the condom protected them from the HPV. After the implementation of the strategy, the students answered correctly the questions about the forms of contagion and the methods of detection of the virus.

The data that the evaluation showed that the students still had a medium knowledge about the virus, but when analyzing the coefficient of variation, it was observed that the students answered the same questions, demonstrating that there was a clearer knowledge on the subject. Unlike the study carried out in Cuba, where the students, after the educational intervention, 95.4% of the population had acquired the knowledge, but it took 8 months to inform and educate the students.<sup>[7]</sup>

It should be noted that, when the educational intervention began to spread, the perception of the men was that they should only be addressed to the women of the institution. This situation is described in a study where they reviewed the educational strategies published are aimed at women and not men,<sup>[21]</sup> although this study does not differentiate between genders. For this reason, he proposes that, for other studies, resources of the digital era be used.<sup>[22,23]</sup>

With the results of the tests, it was verified that the HPV is a real problem among the university students. Knowledge remained medium among university students, despite the educational intervention. The selected strategies must be improved, taking into account the new technologies of information and communication.

The limitation of this study was done in the academic period of the university students 16 weeks. Among the reasons that are exposed and that try to explain the low impact, is the particular history of each patient with said risk factors, as well as with the way in which each one represents the disease.<sup>[24]</sup> Another aspect to take into account is what is mentioned by walls in which he recommends providing a continuing education on the knowledge of cervical cancer and HPV from schools to the university centers because there is a lack of knowledge of it in the young population, considering that they are the most vulnerable and that is where a more effective prevention could be initiated<sup>[9]</sup> On the other hand, another author states that the possible causes are the beliefs that people have in relation to the risk of contracting the disease, denial and fatalism/familism present in the human being, where they deny their illness by postponing their diagnosis and treatment.<sup>[25]</sup>

## CONCLUSION

With the results of the tests, it was verified that the HPV is a real problem among the university students. Knowledge remained medium among university students, despite the educational intervention. The selected strategies must be improved, taking into account the new technologies of information and communication.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Ferlay J, Soerjomataram I, Dikshit R, Eser S, Mathers C, Rebelo M, *et al.* Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer* 2015;136:E359-86.
2. Bureau P. The Alliance for Cervical Cancer Prevention (ACCP). Washington, USA: Seattle; 2004.
3. Alpizar J, Rodríguez Jiménez P, Educational intervention on sex education in teenagers from a junior high school. Union of Reyes, Matanzas, Cuba. *Rev Méd Electrón* 2014;36:572-82. Available from: [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1684-18242014000500005&lng=es&nrm=iso&tlng=](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1684-18242014000500005&lng=es&nrm=iso&tlng=). [Last accessed on 2018 Apr 10].
4. Sánchez L, Yepes F, Hernández L. Human Papillomavirus Vaccination in Colombia. *Rev Gerenc and Health Policies*; 2014.
5. Bosch FX, Lorincz A, Muñoz N, Meijer CJ, Shah KV. The causal relation between human papillomavirus and cervical cancer. *J Clin Pathol* 2002;55:244-65.
6. Ríos L. Scope of public policies in the area of sexual and reproductive health. adolescent reproductive health services in Colombia. *Rev Científica Salud Uninorte* 2011;24:24. Available from: <http://rcientificas.uninorte.edu.co/index.php/salud/article/viewArticle/1851/5763>. [Last accessed on 2019 Apr 01].
7. Llerena C, Clara V, Mailex L, Otaño P, Lidia D, Farrés Y, *et al.* An educational intervention on sexually transmitted infections at «Zeneido Costa Llerena» School in Corralillo, Villa Clara. *Villa Clara Scientific Magazine* 2016;20:133-6.
8. Ventura B, Castellanos M, Chávez VG, Sánchez EA. Brief educational strategy for maintenance of knowledge about human papillomavirus and cancer prevention in adolescents. *Clin Invest Ginecol Obstet* 2017;44:8-15.
9. Paredes E. Educational intervention to raise the level of knowledge on cervical cancer and the human papillomavirus in students of UNASAN, filial Barranca, 2010 Reproductive Elizabeth del Pilar Paredes Cruz; 2012.
10. Silva R, León D, Brebi P, Ili C, Roa JC, Sánchez R, *et al.* Detection of human papilloma virus infection in men. *Rev Chilena Infectol* 2013;30:186-92.
11. Kim M, Choi JH. A study on sexual behavior, sexual knowledge, and sexual assertiveness among Korean college students. *Indian J Sci Technol* 2016;9:9.
12. Teresa M, Araya A, Poupin L. Why don't women take the pap smear? Answers Delivered by Cervical Cancer Program Professionals - Southern Metropolitan Health Service Boom east. *Rev Chil Obs Ginecol* 2010;75:284-9.
13. León L, Allen B, Lazcano E. Counseling on HPV detection such as cervical cancer screening test: A qualitative study on needs of women in Michoacán, Mexico. *Salud Publ Mex* 2014;56:519-27.
14. National Cancer Institute. Cervical Cancer. General Information About Cervical Cancer; 2017. Available from: <https://www.cancer.gov/espanol/tipos/cuello-uterino/paciente/treatment-neck-uterine-pdq>. [Last accessed on 2018 May 08].
15. De Waure C, Mannocci A, Cadettu C, Gualano MR, Chiaradia G, Vincitorio D, *et al.* Knowledge, attitudes and behaviour about sexually transmitted infections: a survey among Italian university female students. *Epidemiol Biostat Public Health* 2015;12:15. Available from: <http://ebph.it/article/view/11112>. [Last accessed on 2018 Feb 26].
16. Muñoz N. Human papillomavirus and cancer: The epidemiological evidence. *J Clin Virol* 2000;19:1-5.
17. Dunne EF, Nielson CM, Stone KM, Markowitz LE, Giuliano AR. Prevalence of HPV infection among men: A systematic review of the literature. *J Infect Dis* 2006;194:1044-57.
18. Ministry of Health and Social Protection of Colombia. Justification of Vaccination against Human Papillomavirus (HPV) - Colombia 2013. Alternative HPV Vaccination Scheme; 2013.
19. Herrera A, Arriaga C, Conde C, Sánchez M. Knowledge about herpes simplex virus type 2 and human papillomavirus, and perception of risk of acquiring infections among university students. *Gac Med Mex* 2013;149:16-26. Available from: [http://www.anmm.org.mx/GMM/2013/n1/GMM\\_149\\_2013\\_1\\_016-026.pdf](http://www.anmm.org.mx/GMM/2013/n1/GMM_149_2013_1_016-026.pdf). [Last accessed on 2018 Jun 06].
20. Takamoto D, Kawahara T, Kasuga J, Sasaki T, Yao M, Yumura Y, *et al.* The analysis of human papillomavirus DNA in penile cancer tissue by *in situ* hybridization. *Oncol Lett* 2018;15:8102-6. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/29731917>. [Last accessed on 2019 Apr 01].
21. Contreras R, Magaly A, Jiménez E, Gallegos R, Xequé Á, Palomé G, *et al.* Level of Knowledge in Adolescents About Human Papillomavirus. *Univ. Nursing*; 2017.
22. Ok Lee K, Ok Kim S, Young Hwang J. The Effect of the Education using the Breast Model on the Female College Students' Knowledge and Techniques of the Self-Examination of the Breasts. *Indian J Sci Technol* 2016;9:9. Available from: <http://www.indjst.org/index.php/indjst/article/view/107836>. [Last accessed on 2018 Jul 04].
23. Hyun J, Bok C. Efficacy of an application-based recurrence prevention program for breast cancer survivors: A pilot study. *Indian J Sci Technol* 2016;9:9.
24. Julio E, Hoyos Z, Duvaltier BI, Giraldo GW. Limits of promotion and prevention programmes. A psychoanalytic perspective. *Iatreia* 2003;16:132-9.
25. Concha X, Urrutia T, Riquelme G. Creencias y virus papiloma humano. *Rev Chil Obstet Ginecol* 2012;77:87-92. Available from: [http://www.scielo.cl/pdf/rchog/v77n2/art02.pdf%5Chttp://www.scielo.cl/scielo.php?script=sci\\_arttext&pid=S0717-75262012000200002](http://www.scielo.cl/pdf/rchog/v77n2/art02.pdf%5Chttp://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0717-75262012000200002). [Last accessed on 2018 Aug 01].